MODULE 5: SETTING TARGETS AND MEASURING SUCCESS

For each objective you set for your significant environmental aspects in Module 3, you will set a corresponding target. A target is a detailed performance requirement. Using the Module 4 press cleaning example, assume that the alternatives evaluation showed that the Company could reduce air and water releases both in the plant and at the laundry by substituting Product B, and that this shows an acceptable level of performance and cost. The environmental target then could be stated as follows:

> Reduce air releases of regulated chemicals in press cleaner by 80% in the plant, and reduce the volume of regulated chemicals on used wipers by 40% by the end of a 12-month period through product B substitution and improvements in work practices.

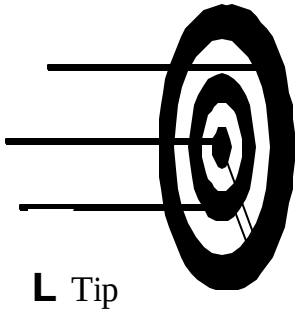
The evaluation showed you what is possible in terms of reducing air and water releases, and also showed you the best means to accomplish that objective. When you frame your target consider how you will measure the results. You will need to establish ways of measuring your progress in meeting the targets, in order to both evaluate your process and document success. Time frame is also important. How long will it take you to implement the program, which includes training people, acquiring new product, phasing out old product, acquiring equipment, defining new work procedures for several steps of the production process, and establishing operational controls for changed processes?

Measuring Results

Some say that "an EMS without an effective monitoring and measurement program is like driving at night without the headlights on – you know that you are moving but you can't tell where you are going!"[1]

For each target, identify a measurement for success, e.g. volume of waste or energy used or percent of cartridges recycled (see Worksheet 5-1). These measurements, also called performance indicators, should be:

< simple and understandable,



L Tip

State your target in terms of the environmental improvement to be achieved, rather than the means of achieving it. For example, "reduce air releases of X" rather than "substitute X." The desired improvement may continue for a long time, but the means may change with circumstances.

L Tip

Be sure to consider what operational controls may be needed for any new processes. Refer to Module 6 for help.

[1] Environmental Management System: *An Implementation Guide for Small and Medium-Sized Organizations*, NSF International, Ann Arbor, Michigan, November 1996, p. 49.

- objective,
- verifiable,
- linked to production, and
- relevant to your objectives.

Below are some sample performance indicators:

- tons of SO_2 released per unit of electricity produced,
- pounds of hazardous substance "X" emitted per unit of product, or per dollars of sales, and
- percentage reduction in the discharge of a material in a given year versus that in a base year.

Measure changes in the aspect (e.g., reduced waste) with respect to production or sales rather than by itself in order to evaluate environmental improvement. Changes in the sales volume with no real environmental improvement. Each measure should be an indicator of where problems may be occurring in the process. Worksheet 5-1 is designed to assist you in tracking your measurement indicators.

L Tip

Measuring and evaluating environmental performance is an ongoing process.

Worksheet 5-1: Environmental Performance Measurement Indicators						
Aspect	**Objective**	**Indicator**	**Date Checked**	**Who Checked**	**Result**	**Corrective Action**
Waste Toner Cartridge	Recycle cartridges	Number bought / number recycled	monthly	Office manager	1 missing	Discuss problem with copier maintenance person
Contact Person:				Date Completed:		

In the toner cartridge example, the performance indicators might be the number of toner cartridges used and the number sent for recycling. In the case of the air emissions from the press cleaning, measurements could include:

- amount of press cleaner used per 1,000 images printed,
- amount of press cleaner saved over a selected time period,
- amount of press cleaner used at each press per 1,000 images printed,
- amount of fluid collected from wipes before sending them to the laundry, and
- levels of solvent in water reported by POTW associated with laundering this company's press wipes.

You may be able to think of more. It is important to recognize that each "indicator" measures something different. The first one measures "input" with respect to "output." This ratio is important because changes in use of press cleaner can be caused by fewer print runs, as well as more efficient use of the cleaner during the production process. To be sure that you are measuring success rather than simply reduced production, be sure to include output in your measurement criteria. You may also need to include more than one kind of measurement to understand the results and be able to evaluate the process.

Experience has shown the importance of setting up measurement criteria to assess how things are going.

The second measurement allows you to compare a current time period with previous time periods with respect to press cleaner use, which could help to indicate efficiencies in use, such as better work practices. Again, this comparison should not be made without reference to output over the same time period. Number three also provides a comparison among different work practice methods. Number four shows how much press cleaner is being reused and the reduction in burden on the laundry, and number five shows the success in reducing water releases at the laundry. In a sense, number five is the "acid test" of whether your goal is being met. Without success here, the achievement of the targets within your plant would be meaningless because the original problem was the water releases from the laundry caused by the wipes. Each of the other measurements shows success in the achievement of targets that are steps toward your final goal. Also, some of these measures can be used to determine cost savings related to particular steps and to the overall goal. Most important, each measure is an important indicator of where problems may be occurring in the process.

If you use special equipment to measure environmental performance, it is important that you maintain and calibrate the equipment on a regular schedule. Again, designate a person to be responsible for this task, provide appropriate training on maintaining the equipment, and document the calibrations schedule. Worksheet 5-2 provides a sample log for calibration.

Worksheet 5-2: Calibration Log

Indicator	Measurement Method	Equipment Used	Equipment calibrated: date/method
Contact Person:		Date Completed:	

Determining Causes of Problems

You will need to establish a method to determine the causes of failing to meet a target. In some cases, the cause might not be difficult to understand. Other times, however, the cause might not be obvious.

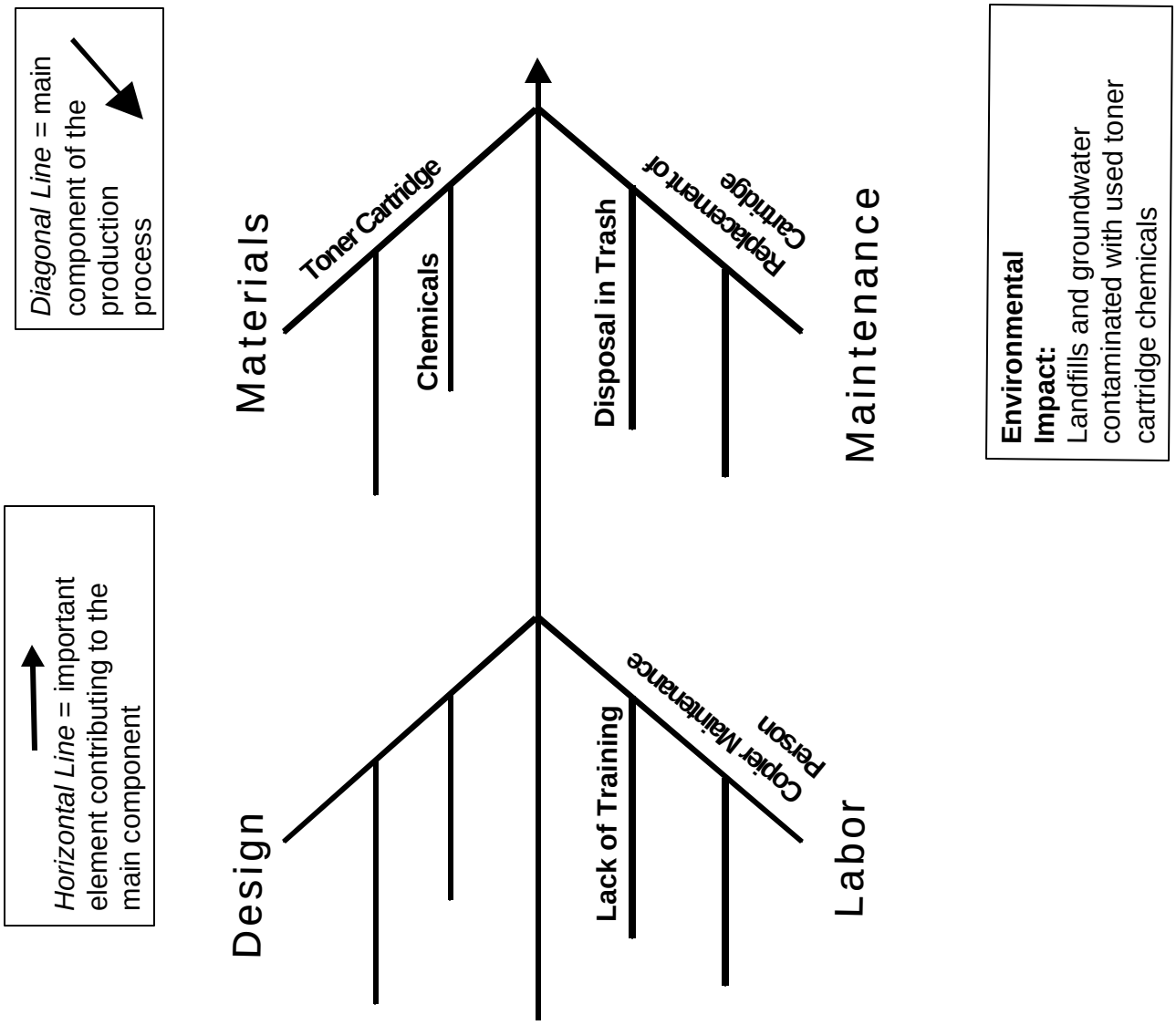
One method is called "root cause analysis." This method can be applied here to identify causes for not meeting targets. You can also use it to determine the possible causes of a potential impact. You should determine the root cause of each of your significant aspects.

The root cause diagram, shown in Figure 5-a, will help you organize your thinking when you analyze your company's potential for environmental impact. This analysis can be done by one person or by a group, with one person writing down the ideas produced. Each diagonal line represents a main component of the production process. Your company may have different or additional components (for example, "disposal") beyond those represented here. Each horizontal line stemming from the diagonal represents an important element contributing to each of the main components. For example, elements of work practices might contribute to the labor component. This diagram is simply a device to help organize the analysis of the cause of potential environmental impacts. Use it if it helps, but don't get hung up on trying to make it work.

L Tip

For more information on constructing a "Cause and Effect Diagram," go to www.sytsma.com/tqmtools.cause.html

Figure 5-a. Root Cause Diagram



The following are typical, but not necessarily obvious, causes of problems:

< poor communication,
< faulty or missing procedures,
< equipment malfunction (or lack of maintenance),
< lack of training,
< lack of understanding (of requirements), or
< failure to enforce rules.

Be sure that you have considered these possibilities in your environmental impact analysis.

Taking corrective action

Once you document a problem with respect to meeting targets, the company must be committed to resolving it. Take action as quickly as possible. First, make sure assigned responsibilities for actions and schedules are clear.

Employees in the shop may recognize the need for corrective action and provide good ideas for solving problems. Find ways to get them involved in the improvement process. It's important to determine whether a lapse is temporary or due to some flaw in the procedures or controls. For this reason, communicate any findings to employees, and provide any follow-up training for changes in the procedures that may result. The following is a checklist to help complete corrective action. Have you:

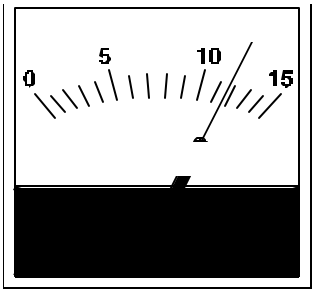
< Identified the problem(s)?
< Identified the cause(s)?
< Come up with a solution for each?
< Implemented the solution(s)?
< Documented the solution(s)?
< Communicated the solution(s)?
< Documented the action(s)?

Worksheet 5-3 is a sample Corrective Action Notice that will assist in documenting the resolution process.

Worksheet 5-3:* Corrective Action Notice	
Issue Date:	Solution Due Date:
Requested by: Issued to:	
Problem Statement:	
Most Likely Causes:	
Suggested Solutions:	
Action Taken:	
Measured Results:	
Corrective Action Closed by:	Date:
Contact for Notice:	Date completed:

*Report results on TCA-01 in the *Company Manual Template.*

MODULE 6: DEVELOPING OPERATIONAL CONTROLS



As mentioned at the end of Module 3, for every environmental aspect your company determines to be significant (SEA), it is desirable that one of two actions be taken. Action may include either:

- Evaluating alternatives to make changes in processes in order to reduce the potential for impact, or
- Writing operational control procedures for activities or steps in a production process where the potential impact may be well controlled.

In writing operational controls for an SEA, determine the environmental objectives desired, set targets for performance and write operational controls (procedures) to ensure that the objective will be met. Your company may already have procedures in place. These should be reviewed to be sure they are consistent with EMS objectives. This module describes the process for setting objectives, developing operational controls, and creating the organizational support for ensuring that those objectives are met.

If you determine that process changes should take place in order to address an SEA, the IEMS emphasizes the need to evaluate alternatives before setting targets. Module 4 describes the process for evaluating alternatives.

The following are some examples of the kind of activities that might be improved with operational controls[1]:

- management/disposal of wastes,
- approvals for using new chemicals,
- storage & handling of raw materials and chemicals,
- wastewater treatment,
- building and vehicle maintenance,
- transport,
- operation and maintenance of equipment,
- management of contractors,

L Tip

ISO 14000 requires action to be taken on each SEA. If you are not pursuing ISO certification at this time, you could focus on selected SEAs.

L Tip

Objective: Overall environmental goal, based on the environmental policy, which is quantified where practicable.
Target: Detailed performance requirement based on an environmental objective.

Experience has demonstrated the importance of written procedures and thorough employee preparation and involvement.

[1] Adapted from *Environmental Management Systems: An Implementation Guide for Small and Medium-Sized Organizations.* See References (Appendix G) for more information.

- marketing and advertising, and
- acquisition or construction of property and facilities.

The process of setting targets and ensuring their success has several steps which are discussed in more detail below. These include:

- determining the possible causes of potential impact,
- setting measurements for the desired environmental performance,
- drafting operational controls,
- designating persons responsible for maintaining operational controls and for reviewing the success of the controls,
- developing training for persons assigned responsibility,
- taking corrective action when objectives are not met, and
- establishing a DfE environmental review for new processes and products.

1. Determine the possible causes of potential impact

For all of your significant environmental aspects, you should determine the cause of the impact. In some cases, the cause might seem obvious. However, sometimes the root cause of the problem is not the most obvious cause. Use the "root cause" analysis described in Module 5 to help your EMS team get to the cause of the impact prior to developing your operational controls.

2. Set targets and measurements for environmental performance

As discussed in Module 5, you need to set a target for each objective and establish measurements for environmental performance indicators. The targets should reflect correction of the root cause identified above. Measurement indicators should document changes in the causes identified above. Using the indicators, you can determine if your operational controls are helping you meet your objectives.

3. Draft operational controls

Next, for each significant aspect which you have decided to address with procedures, draft operational controls. (For some aspects, you may choose to make process changes instead, as explained in Module 4.) Review each of the causes identified in your root cause analysis that would contribute to the

environmental impact of a significant aspect. Address the causes by drafting operational controls.

Operational controls may already exist for some of the activities associated with a significant aspect. Identify which aspects have written procedures that describe operational controls, and which aspects will need to have procedures developed. In some cases the procedures that you have in place to comply with environmental and health and safety regulations may be useful to meet your IEMS objectives. Worksheet 6-1 below will help you track which aspects will require procedures to be developed.

L Tip

DfE Partner Jeff Adrian of the John Roberts Company has provided operational control examples. See the Case Study at the end of this module.

Worksheet 6-1:* Operational Control Procedures

Significant Environ-mental Aspect	Indicator(s)	Associated Job Functions	Existing Operational Control Procedures	Operational Control Procedure Development/ Modification Needed	Responsible for Developing	Responsible for Checking	Location Posted
Waste Toner Cartridges	Number of Toner Cartridges recycled compared to number purchased	Copy machine maintenance	none	yes / new	Office manager	Office manager	Over copy machine
Contact Person:					Date Completed:		

*Corresponds to OC-01 in the *Company Manual Template.*

It is important to involve the people who will implement the procedures in drafting them. You can accomplish this in several ways:

- Meet with workers and have them describe current procedures. Discuss the environmental objective desired, and how to write operational controls (procedures) to ensure that the objectives will be met.
- Or, have someone (possibly an intern) interview the workers to establish current (undocumented) procedures; then draft (or revise) operational controls. Have the workers and a manager review the draft.
- Keep the written operational controls simple and concise. They should include the appropriate actions, precautions, and notifications required. Focus on activities that may lead to significant impacts and avoid getting overwhelmed by trying to control every activity and process.

4. Designate responsibility for maintaining and reviewing controls

Designate those people responsible both for maintaining the controls and for reviewing them to ensure that procedures are followed and deviations corrected. Generally, the workers responsible for the significant aspect under consideration will be responsible for implementing the operational controls. The immediate line manager would most likely be responsible for regular review of the controls. It is helpful to list those people responsible for each set of procedures. Worksheet 6-2 will help with documenting responsibilities.

Worksheet 6-2: Operational Control Responsibilities		
Significant Aspect	**Procedures (list)**	**Responsible for maintaining controls**
Waste toner cartridges	-save package from new toner cartridge -place waste cartridge in package -follow supplier instructions for return of used toner cartridges	Copier maintenance person
Contact Person:		Date Completed:

5. Develop training

Achieving success in meeting environmental objectives for each significant aspect depends upon making sure that each person responsible for maintaining or reviewing controls has received adequate training. After operational controls are drafted, develop a training program that ensures everyone understands both the controls and their own role in ensuring that they are followed. Training can include on-the-job training. Worksheet 6-3 identifies some of the decisions to be made when setting up a training plan. This worksheet helps you identify, plan for, and track the training needs of your employees. Include this training with any general environmental training to create an integrated training plan for your IEMS. See the John Roberts case study at the end of this module for an example of training materials one printing facility prepared to support an operational control.

L Tip

The training described here relates to operational controls. More information on training for environmental awareness and regulatory training can be found in Module 8.

Worksheet 6-3: Training Plan for Operational Controls								
Aspect	**Procedures**	**Person Responsible for Carrying Out**	**Training Needs**	**How to Train**	**When/ Length**	**Budget**	**Completion Date**	**Person Responsible for training**
Waste Toner Cartridges	For Recycling	Copier Maintenance Person	Recycle Procedure	Office Manager Explain	When assigned copier maintenance duties/ 20 min	N/A	Within one week of taking job responsibility	Office Manager
Contact Person:						Date Completed:		

6. Take corrective action when objectives are not met

Take action to correct failures in operational controls as quickly as possible to meet environmental objectives. Use the process in Module 5, to take appropriate corrective action when your operational controls are not helping you meet your objectives.

L Tip

If the problem cannot be resolved, review Module 4 to determine a need for evaluating alternatives.

CASE STUDY FROM THE JOHN ROBERTS COMPANY

Example of an Operational Control For Cleaning Press Blankets

Steps

1. On the first turn of the cylinder, use a solvent saturated shop towel pad (as is the current practice) to loosen and remove most of the ink from the blanket's surface.
2. With a second shop towel pad that has been first dipped into water and then wrung out, remove the balance of the ink from the blanket's surface on the second turn of the cylinder.
3. Start the press as before.

Critical points

By not using water on the first turn of the cylinder, the full strength of the Press Wash is available to move the ink. So, do not blend down Press Wash with water.

It is not necessary that the blanket be absolutely dry after the second turn of the cylinder. Rather, a slight film of water (think of how the sidewall of your car's tires look after just washing the car) will not be problem on startup of the press. The first few sheets will very easily carry this moisture off.

By using a second pass with a water wipe, clays, starch and paper dust are better removed. A water wipe should be easier to slide across the blanket than a drywipe.

Care does need to be taken in just one respect, and that is in the area of the blanket cylinder's grippers. Excess Press Wash or moisture there has the potential of being spun off the cylinder onto the stock if not removed.

Towel usage

When the solvent shop towel pad is dirty, discard it in the safety cans as before.

The water wipe shop towel pad now becomes the solvent shop towel pad and a new pad (from clean shop towels) is made up for the water wipe step.

CASE STUDY FROM THE JOHN ROBERTS COMPANY

Example of Training for Operational Controls

As part of training, the Director of Environment and Safety distributed additional materials to all employees involved with press blanket cleaning. Because this operational procedure documents a new and standardized method, there were many questions from employees. The director prepared additional written information, including: 1) a background sheet telling employees why this procedure was important, and 2) a Q&A list addressing issues that had come up in training.

These materials and the associated training were done to ensure that employees knew why the procedure was needed and what part they were to play in consistently implementing it.

Training for Press/Blanket Washing

New Procedures Background

Background

As some of you may already know, the elimination of Blanket Wash 2215 is necessitated by the tightening of environmental regulation.

Blanket Wash 2215 is a blend of solvents that includes the chemical 1,1,1 Trichlorethane (TCA), a chemical that has been banned internationally by the Montreal Protocol..

The reason for this is that TCA is an upper level ozone depleter, destroying the ozone layer that shields us from the harmful effects of the sun's ultraviolet radiation.

While still being manufactured today, TCA is being taxed at ever higher rates until it will no longer be manufactured in 1995.

Additionally, because Blanket Wash 2215 evaporates readily to the atmosphere, the other chemicals in the blend contribute volatile organic compounds (VOC's), which when combined with nitrogen oxides (from the burning of fossil fuels) and sunlight, leads to the formation of smog in the lower levels of our atmosphere.

The replacement for Blanket Wash 2215 will be the use of the much less volatile, and thus less harmful, Press Wash.

Because Press Wash solvent works at a different rate that the discontinued Blanket Wash 2215, a new cleaning procedure will have to be followed.

This new procedure, though somewhat different than today's method, will work nicely to clean press blankets.

CASE STUDY FROM THE JOHN ROBERTS COMPANY

Training for Press/Blanket Washing Questions You May Have

If we can still buy solvent blends that contain some 1,1,1 Trichlorethane (TCA), why do we need to make the change now?

Well, there are several reasons. First, there are some health concerns with TCA, so we want to eliminate any exposure as much as we possibly can. Second, in an effort to discourage the use of TCA now, the government is increasing taxes on this chemical (and other targeted chemicals), making the product unduly costly. Third, this is a reportable usage chemical, which requires that we complete Form R (a complicated procedure) that is also public information. It is better that we have no reportable chemical usage because if we do, then we are also brought into the regulatory loop on many other time consuming and costly programs. Fourth, John Roberts has made a commitment to reduce its total emissions as part of the Minnesota Toxic Pollution Prevention Plan and we will be accountable for reaching these goals. Fifth, as a responsible member of the community (in which many of us live as well as work), it is the right thing to do for the betterment of our environment.

Will this new procedure slow down my work and reduce my productivity? Will I be penalized because of this?

Unquestionably, this new procedure will slow things down slightly, but not by much. Even with the older Blanket Wash, pressmen would often use two turns of the cylinder to complete the cleanup of the blanket. Understanding that the blanket does not need to be completely dry will save otherwise wasted time. So the only remaining time element is the need to switch to a water wipe shop towel pad and the time to take care to wipe the blanket ends, especially the cylinder gap. Management's commitment to environmental responsibility supports your efforts.

What if I find I need more shop towels? Won't this new procedure use a lot more shop towels?

If it turns out that you need more shop towels, they are available (we ordered extra last week and have them in stock). Testing that we have already done has shown that towel rotation (where the water wipe pad becomes the new solvent wipe pad and clean towels are then used for the new water wipe pad) works very well.

Can I use a sponge instead of a shop towel pad for the second (water) wipe?

Yes, it's possible to use a sponge instead of a padded shop towel for the water wipe. But if you do choose to use a sponge, you will have to use less wiping pressure or you will squeeze the water out of the sponge onto the blanket leaving the blanket too wet. Try it and see if you like it. You may find a shop towel water wipe easier to control.

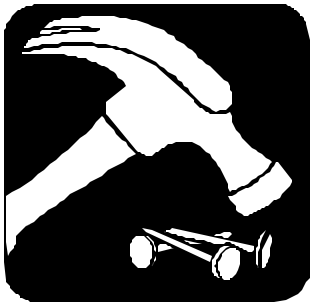
Can I mix water with the Press Wash and do it all at one time? Why might this not be a good procedure?

Yes, again it's possible to do this, but it's not recommended. Here's why. When you add water to Press Wash, you dilute the Press wash's ability to cut the ink in the first place. This may mean more work and slower cleaning. Also, Press Wash contains surfactants that make it able to mix with water, and it is these surfactants that tend to remain on the "clean" blanket that cause problems with both the ink roller train and the water fountain systems. It's good to remove surfactants as completely as possible, and this is best done with a separate water wipe.

Can I just use a dry shop towel pad to wipe the blanket completely dry instead of a second water wipe? Would I be better off?

Well, for the reasons listed above, it's not recommended to use a dry shop towel second wipe. Aside from the fact that some feel a dry shop towel is harder to move across the blanket (it tends to drag), how would you clean the blanket of water solubles such as starches, clays and paper dust? The only reason I can think of to completely dry the blanket would be to ease your fear of "throwing"solvent drops on the work after startup. This is addressed by taking a little care on the second (water) wipe, especially at the ends of the blanket in the cylinder gap.

MODULE 7: IMPLEMENTING YOUR IEMS



You will ensure the success of your IEMS by developing the capabilities and support mechanisms to achieve your environmental policy, objectives, and targets. This module will cover planning for and setting up environmental management projects for each objective. In addition, this module covers tools that will help you keep your IEMS on track: a new product review process, a regulatory compliance tracking system, a pollution prevention tracking log, and an Emergency Preparedness and response plan development process.

Setting Up Environmental Management Projects

This section will help you set up environmental management projects developed to achieve each objective and target selected in previous modules.

The three main elements in developing an environmental management project are:

- identifying the person responsible for achieving the environmental objectives and targets in each relevant function and level;
- establishing the means or action plan for achieving targets and objectives; and
- implementing timetables.

An outline for such a program might include:

- objective,
- target,
- person(s) responsible,
- budget,
- date of expected completion,
- date of actual completion, and
- performance indicators for measurement.

Let’s continue working with the two examples from Module 3:

- Recycle used toner cartridges.
- Reduce the environmental impact of chemical wastes from

cleaning a printing press. Remember, the environmental aspect is the air releases during the press cleaning process and the water releases at the commercial laundry where the used press wipes were sent.

Figures 7-a and 7-b show example projects for the above two sample objectives and targets.

Figure 7-a. Sample Environmental Management Project Plan

Environmental Management Project Plan

SEA: Waste from Copy Toners

Date_____

Environmental Objective: Reduce the waste from used copy toner cartridges

Performance Indicator Measurement: Number of cartridges purchased vs number mailed and number remaining in stock in one-year period.

Target: 100% recycling of used toner cartridges in conformance with manufacturer instructions.

Action Plan: Train persons in charge of replacing toner cartridges. Create a check list for dates cartridges mailed for recycling.

Responsibility: Office Manager

Budget: One hour training

Schedule: One month

Review: Monthly by company manager.

Corresponds to OTP-02 of the *Company Manual Template*.

Figure 7-b. Sample Environmental Management Project Plan

Environmental Management Project Plan

SEA: Chemical Wastes from Press Cleaning

Date_____

Environmental Objective: Reduce the Environmental Impact of Chemical Wastes from Press Cleaning

Performance Indicator Measurement: Amount of fluid reused; reduction in vapors measured at laundry provided by laundry.

Target 1: Reduce air releases of cleaning fluid by 80% in plant by end of 12-month period

Action Plan 1: Substitute Product B cleaning fluid, train printers in new product use

Responsibility: Printing Press Manager

Budget: Cost of new fluid

Schedule: Six months

Review: Monthly by company manager.

Action Plan 2: Substitute best work practice, train printers in best work practice

Responsibility: Printing Press Manager

Budget: Time for training and evaluation of results

Schedule: One year

Review: Monthly by company manager.

Performance Measurement: Amount of Product B substituted for current product in one-year period and reduction in total product used over one-year period.

Target 2: Reduce releases to the water at laundry by 40% after 12-month period.

Action Plan: Remove excess fluid from wipes prior to sending to laundry; reuse recovered fluid

Responsibility: Shop manager

Budget: Cost of centrifuge, time to process wipes

Schedule: 12 months

Review: Monthly by company manager.

Corresponds to OTP-02 of the *Company Manual Template*.

As you can see from Figure 7-b, more than one target can be used to accomplish an objective, and more than one action plan to accomplish a target. You need to outline the steps necessary to achieve each target and make sure that the responsibility for completion is assigned, the time frame specified, and a budget given to ensure completion. Appendix H contains a blank worksheet to assist you in planning your environmental projects.

Resource

The results of your environmental projects plan can be documented on OTP-02 in the *Company Manual Template.*

Review New Products, Processes, and Activities

Change is an important part of business survival for most companies. Products, technologies, ways of doing things are updated regularly. To avoid creating new "significant environmental aspects" that must be addressed later, it is helpful to integrate new processes, products, and activities into the environmental management program that you are developing for the rest of your company. You can do so by setting up a procedure for reviewing new processes, products, or activities while they are in the planning stage. One way to accomplish this is to create a sign-off form to be circulated among the people responsible for or affected by the new process or product, including those responsible for the area of the company where the new process or activity will be implemented. Worksheet 7-1 is an example of such a sign-off form. The worksheet is a model that should be modified to reflect your company's activities and environmental policy.

Tip

Conduct an Environmental Review when buying a new product, making a new product, changing an existing process, developing a new process, or undertaking new or changed activities.

Worksheet 7-1: Environmental Review of New Processes, Products and Activities

Area of Company	**New Process, Product, or Activity**	**Environmental Review by**	**Environmental Effects**	**Pollution Prevention Opportunities**
	Manager/Date	Manager/Date		
Contact for form:			Date Completed:	

Compliance Tracking

If your company does not already have a method in place for tracking regulatory compliance activities, this IEMS Program provides the opportunity for developing one. A tracking system will help you integrate this aspect of environmental control into your IEMS Program, future planning, and your annual management review. Worksheet 7-2 provides an illustration.

L Tip

Investigate the legal requirements that may be associated with documenting your company's compliance before you design the worksheet that you will use. Worksheet 7-2 is an example of components that are useful, but regulations differ by locality. One source to review would be EPA's Small Business Compliance Policy.

Worksheet 7-2:* Compliance Tracking Log					
Person Responsible	**Regulation**	**Compliance Check Date**	**Results and Root Cause**	**Corrective Action/Date**	**Compliance Verified/ Date**
Contact Person:				Date Completed:	

*Document results on CA-01 in the *Company Manual Template.*

Root cause analysis and the corrective action notices described above are useful in examining failures in compliance and ensuring that corrective action occurs.

Pollution Prevention: Ideas and Tracking

Pollution prevention is another environmental management tool that is important to integrate with your company's business activities. Pollution prevention means reducing or eliminating waste at the source. The focus is more on waste than on environmental risk. There is a hierarchy of solutions for pollution prevention:

1. source reduction,
2. reuse/recycle, and
3. treatment.

Before deciding on major changes, an evaluation of alternatives, as described in Module 4, should be completed. There are, however, many different ways in which your company could successfully implement pollution prevention activities, especially if employees are encouraged to think about how to implement pollution prevention in their work practices. Some examples would include reuse and recycle of office paper, turning off lights/equipment when not in use, and keeping the lid on solvent containers.

You may develop specific programs that incorporate pollution prevention, such as the toner cartridges example above, and you may also want to encourage pollution prevention practices across the company. Measuring pollution prevention achievements is different from, and often more difficult than, measuring environmental achievements in general. Simply measuring the reduction in a waste stream might mean only that the waste has been transferred to another medium, not reduced. It is therefore important to measure the reduction at the source of waste generation. It may also be important to measure the activities that your company directs towards pollution prevention. The following are existing sources of information that your company may have that would help you track pollution prevention:

- Permit applications
- TRI reports
- Purchasing records
- Utility bills

- Hazardous waste manifests
- Material Safety Data Sheets

In addition, administrative procedures can be set in place that support pollution prevention activities. Below is a checklist to help you consider opportunities for your company:

- Establish procedures in each company area for identifying pollution prevention opportunities.
- Have a chemical or raw material inventory system in place.
- Assess how many objectives have been met through pollution prevention.

Worksheet 7-3 provides a tracking log for pollution prevention in your company.

Worksheet 7-3: Pollution Prevention Tracking Log

Area of Company	Pollution Prevention Activity	Date Started	Results	Measurement Method	Person Responsible

Contact: Date Completed:

Emergency Preparedness and Response

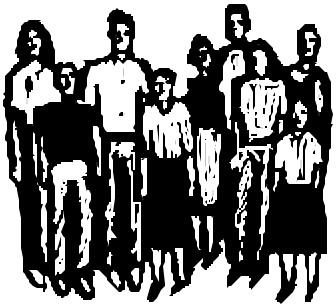
It is important to include environmental concerns in your emergency preparedness and response plans and training. The following steps will help you integrate plans for reducing the potential environmental impact of accidents, spills or other emergency situations.

- Appoint a person responsible for integrating environmental concerns. This can be the person already responsible for Emergency Preparedness and Response or someone from the IEMS team who will work with that person.
- Identify the potential environmental impacts of potential emergency scenarios.
- Develop response procedures to minimize these impacts and integrate them into the emergency preparedness and response plans.
- Conduct training for employees affected by these new procedures.

Worksheet 7-4 will help you identify your needs so that you can develop a plan.

Worksheet 7-4: Environmental Emergency Preparedness and Response				
Potential Emergency Scenario	**Potential Environmental Impact**	**Action Required**	**Procedures Needed**	**Training Needed**

MODULE 8: BUILDING ORGANIZATIONAL SUPPORT



Effective organizational support is important to achieving long term success for your IEMS. This module will cover training, documentation, stakeholders and communication.

Training to Get the Job Done

It's very important that people receive the training needed to get work done in a way that is consistent with your objectives. Training is needed both in technical work and for general awareness on the part of all employees. The following are some examples of areas where training is needed:

- legal requirements,
- ability to recognize new problems,
- technical work needed to solve problems,
- procedures to implement operational controls,
- any new procedures or needs related to significant environmental aspects, and
- awareness of the company's environmental policy and the IEMS and its objectives

In addition to environmental or worker health and safety training that your company may currently carry out, you will have specific training requirements associated with significant environmental aspect operational controls, as your IEMS develops. Module 6 addressed the training for that phase of your IEMS. Training plans developed during completion of that module should be integrated with the training identified in this module.

Go through the Action Steps listed below and use Worksheet 8-1 to help you identify, plan for and track the training needed to assist in developing and putting your IEMS in place. You will probably be able to identify some general training needs now, but will need to return to this module to add specific technical training needs that may be identified as you proceed with the IEMS.

Action Steps

1. Identify all job functions that affect the environment. Small companies may wish to identify individuals. Identify who is responsible for employee health and safety.

2. Identify the training and type of training these people

L Tip

Don't overlook the need for on-going training when experiencing employee turn-over. Be sure that new employees are trained soon after they arrive.

currently receive that relates to environmental, including health and safety, concerns.

3. Determine if IEMS education could be included in this training or whether there should be special IEMS training, at least in the beginning.

4. Identify training materials or programs available outside your company. Some places to check include:

   - Trade Associations
   - Small Business Association
   - EPA materials
   - State Department of Environmental Protection
   - Suppliers
   - Certified Contractors

Worksheet 8-1: Training Plan

Jobs Affecting Environment	Training Needs	How to Train	When/ Length	Budget	Completion Date	Who is Responsible
Sample: Staff EH&S Person	Environmental Policy	Staff Training Session	Once/ Two hrs.	?	?	?
Production Employees	Emergency Preparedness & Response					
Contact Person:			Date Completed:			

Documenting Your Work

When undertaking a new activity like IEMS development, documenting discussions, plans, targets, and programs is crucial. Documentation ensures that no information is lost, and lets you track your performance. Much of this documentation will become the content for your company's IEMS Manual. The companion document to this guide, the *Company Manual Template*, provides a template for your own documentation development. Documentation is important to the success of your IEMS for several reasons:

- Word-of-mouth information is rarely communicated consistently, whereas written information is more likely to be constant from person to person and over time.
- Creating documentation helps you assess the progress of your IEMS. Some inconsistencies show up only as you commit your ideas to paper, and having a record allows you to check on progress and evaluate results.
- Documentation is vital to maintaining consistency in an IEMS over time and from department to department. In most companies, change is a fact of life: new products are developed, the company grows, employees change positions or leave the company. Accurate documentation will make it much easier to maintain an effective and flexible IEMS during these changes.

What is Documentation?

The term "documentation" has many different interpretations. The term can refer to any or all of the following:

- instructions for doing something;
- records of what was done;
- policies developed;
- printed matter that is given or sent to clients, regulatory agencies, customers, and the public; and
- any electronic copy of the items above.

How a company interprets "documentation" will depend on its particular experience. For example, documentation could include environmental impact statements, process manuals, or even the local newspaper that reports your company's activities. Other examples might include environmental training records and OSHA manuals. All of the work

Resource

Review the *Company Manual Template* for sample documentation to help you develop your own IEMS Manual.

Experience has proven the value of documenting meetings, decisions, and study results, and of making that documentation accessible to those who need it.

Tip

Documentation is usually the single most overlooked administrative procedure in most companies, but it can play a vital role in EMS development. Determining what you need from your documents, both for future reference and to teach procedures to others, will help you understand the overall needs that you want your IEMS process to meet.

completed to develop your IEMS also provides documentation.

How to Develop Your Documentation

The basic steps in preparing IEMS documentation include:

Step 1: Determine how EMS documentation can be integrated into existing documents.

Before you dive into your documentation, learn how deep the water is. Find out what documentation already exists, what its purpose is, and whether it works. The goal of this search is to locate materials you can use to begin your EMS implementation and documentation. Many companies use the same format for all their documents. An example of existing documentation might be a quality plan or tracking reports.

Step 2: Tailor the documentation to your organization's individual needs.

You will probably have to compromise in producing documentation that meets your needs while also meeting your budget. Here are some questions to help you determine what fits your needs:

- How can you extend those documents that already exist rather than creating new ones?
- Does your business operate in a single location or many? This will affect who creates some of the documents and where they are located. It may also affect how many versions of a document might be necessary to cover different circumstances.
- What is your current computer capability? Many companies use an electronic system to maintain documents.
- What security precautions do you need? As a computer system becomes larger and can be accessed by more people, electronic information can more likely be edited and destroyed. Security, or at least restrictions on who can change data, can be a critical issue for many companies.

Step 3: Determine a format for all documents.

Before developing your IEMS documents, plan the format (document and page appearance) for the documents to be created. If a company standard exists, use it. If not, the need for IEMS documentation provides an opportunity to create a

L Tip

Remember that you will not finish most of the modules in this Guide the first time through. You will probably overlook items that will be useful for your IEMS documentation during your first search. Simply add items as you think of them later in the process. Whoever is in charge of documentation will therefore need to plan for later additions.

standard company format. Consider whether pages are single- or double-sided and why; choose margins, header, footer, typefaces, text, headings, etc. Include plans for bulleted and numbered lists, tables, and even paragraph spacing. Once you have a consistent format for documents, anyone who writes one will use the established electronic format and fill in the necessary text. All documents will look like part of an organized, integrated system. Most important, documents will be it easier to read and understand!

Step 4: Prototype each document.
Prototyping means visualizing what you will need in the document and creating an outline for it before you actually have information to fill in. This practice is useful not only for document preparation, but for the IEMS process as a whole. As you visualize what you will need in the document, you will gain understanding about what you will need from the process of developing your IEMS. It's a way of "outlining" your IEMS process as well as designing documents.

Who should do the prototyping? The best people to do this are the people who will use the document. Involving them in the process gives document users the power to develop documents they will actually use – effective documents.

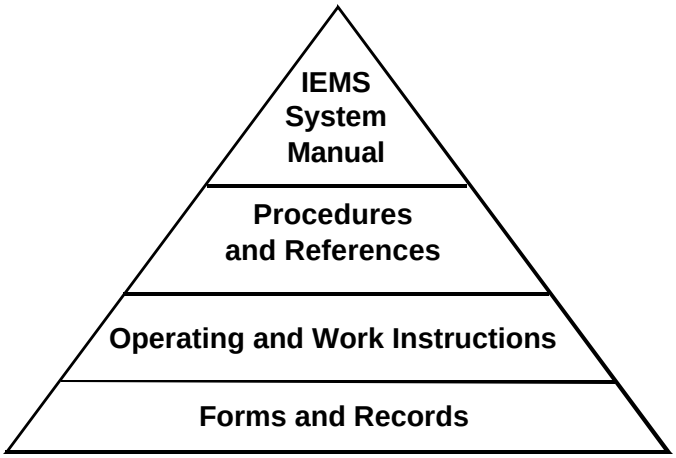
The following questions will help your "prototypers" design documents. Consider these questions for each document you identify as necessary for your company.

- What is the document's purpose?
- Who will use it, and how will they use it?
- How long should the document be?
- What must be included in the document? Which information is most critical?
- Is it process-focused? Process focus rather than regulation- or program-focus helps people who use the documents to better understand how their jobs fit into the rest of the company functions.
- How is the information best arranged? Will the user read sequentially or randomly?

Example: A Tiered Documentation System
The tiered documentation system consists of four "levels" of documents. The system can be shown as a pyramid with the environmental management system manual at the top and

records at the bottom (see Figure 8-a).

Figure 8-a. Documentation Levels



The pyramid shape illustrates a hierarchy in which the amount of detail, degree of specificity, and number of pages all increase as you progress from the top to the bottom of the figure.

Creating an Outline for the Process

It will be helpful at this point to develop some idea of what your IEMS documentation will look like, and thereby determine the work needed to fill it in. Doing so will help to plan the development of your IEMS. Create an outline for the process of developing your IEMS and your Company Manual or other form of documentation that suits your company. What and how much documentation you include depends upon your company's needs. The following outlines a sample Company Manual:

1. Environmental Policy
2. Environmental Action Responsibilities Assignments
3. Environmental Documents and Their Location
4. Identification of Environmental Aspects
5. Identification of Legal Requirements
6. Identification of Significant Environmental Aspects
7. Development of Objectives, Targets, and Action Plans
8. Conducting an Alternatives Evaluation
9. Development of Operational Controls
10. Environmental Training (Awareness and Task-Specific)

Resource

Take a look at the accompanying *Company Manual Template* for sample procedures and formats to help you document important components of your IEMS.

11. Emergency Preparedness
12. Review of New Products and Processes
13. Documentation and Document Control
14. Communication with External Stakeholders
15. Conducting a Compliance Assessment
16. Conducting an Internal Assessment
17. Taking Corrective Action
18. Management Review

The actual content of your outline will be filled in as you proceed to develop your IEMS.

Document Control

Documents must be easy to find and kept up to date. Consider the following points regarding your document control. Two worksheets follow this section. Worksheet 8-2 will help you develop documents and Worksheet 8-3 will help you manage your documents once they have been created.

Sound document management ensures that:

- they can be located;
- they are periodically reviewed, revised as necessary, and approved for adequacy by authorized personnel;
- the current versions of relevant documents are available at all locations where operations essential to the effective functioning of the system are performed;
- obsolete documents are promptly removed from all points of issue and points of use, or are otherwise assured against unintended use; and
- any obsolete documents retained for legal and/or knowledge preservation purposes are suitably identified.

Worksheet 8-2: Documentation

List Existing Documents	Determine Format: Who/ Date Completed	Develop Prototype (Content): Who/ Date Completed	Assign Writing: Who/ Date	Review Writing/ Compare to Prototype Who/ Date	Added to Document List/ Date	Who Has Access	Where Located
	/	/	/	/	/		
	/	/	/	/	/		
	/	/	/	/	/		
	/	/	/	/	/		
List Documents to be Created							
	/	/	/	/	/		
	/	/	/	/	/		
	/	/	/	/	/		
	/	/	/	/	/		

Contact Person: Date Completed:

Corresponds to CS–2 of the *Company Manual Template*.

Worksheet 8-3: Document Control				
Document	**Who Will Use It**	**Permanent Location**	**Periodic Review Schedule/ Who**	**When Can Be Destroyed**
			/	
			/	
			/	
			/	
			/	
Contact Person:		Date Completed:		

Working with Stakeholders

Stakeholders are anyone who has a stake in your company's environmental performance. Stakeholders can play an important role in helping your company develop an IEMS. Employees have strong stakeholder interest in your company and can provide strong support for IEMS development. Customers, suppliers, and neighbors can provide useful input. In addition, establishing partnerships with trade associations, suppliers, professional associations, and community colleges can be very helpful in developing parts of your IEMS. This section addresses the kind of stakeholders you may wish to include in the process and the potential benefits of including stakeholders. While involvement of employees is critical to the success of your IEMS, how far you proceed with including additional stakeholders is your decision.

Stakeholder Roles

Consider why you would want to include internal and external stakeholders and what roles they can play. Before engaging stakeholders, be clear on what you expect their role to be. What do you want from them? What do you intend to tell them? Consider the following:

- Internal stakeholder (e.g., employee) participation can facilitate implementation of environmental projects as employees "take ownership" of the IEMS process and the process changes it may bring;
- Different stakeholders bring useful perspectives to identifying environmental issues, often identifying issues that might otherwise have been overlooked;
- Participation by all types of stakeholders can add credibility, transparency and value to your IEMS;
- Involving external stakeholders can help them understand your business operating constraints;
- Sometimes being an environmental leader can gain customer recognition and loyalty, and involving customers in your IEMS helps them recognize your leadership.
- Forming partnerships with customers and suppliers can help to identify shared concerns and ways to cooperate to resolve them. There may be ways that your company can help your customers meet their environmental management needs. Forming partnerships with suppliers can help your company obtain important information and may help you meet your IEMS goals.

The DfE Program has found that including a variety of stakeholders in a project provides proven benefits. DfE stakeholders include: industry, government, labor, environmental groups, and others. Their inclusion ensures both a mix of viewpoints and a wealth of different experience and training that contribute to a project. This level and breadth of stakeholders may not be available to a small company, but opening your IEMS planning process to a variety of stakeholders will improve results.

L Tip

Working together with your customers to identify common needs in managing environmental concerns can help to build long term relationships.

Identifying Stakeholders

Almost every organization will have a wide array of internal and external groups that may be interested in and helpful partners to that organization. These groups will not be homogenous. Each will have its own priorities and perspectives, and each will have something different to contribute in support of your IEMS.

The following list provides types of stakeholders:

Internal Stakeholders

- Employees
- Shareholders
- Customers
- Suppliers
- Investors & Insurers
- Trading Partners

External Stakeholders

- Neighbors
- Community
- Organizations
- Environmental Groups
- Larger Companies
- The Media
- The Public
- Local Government

You may want to start with those stakeholders who have expressed interest in your operations. If you wish additional input, you can contact the following sources in your effort to locate suitable stakeholders:

- ask your organization's own employees, including plant/site managers and public relations personnel;
- contact local officials for suggestions;
- contact a local planning agency for suggestions;
- contact local schools, community colleges, or universities; or
- contact a national advocacy group to elicit suggestions as to which local or national groups may be interested/suitable.

L Tip

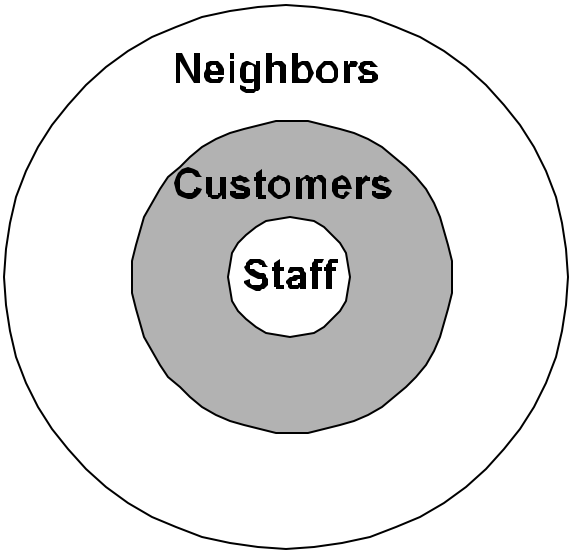
Remember, your stakeholders' concerns may be very different from what you expect, and even less difficult to resolve than you may think. The only way to find out is to talk with them.

How to Work With Your Stakeholders

The next stage of the process is to establish dialogue with stakeholders. You may view this as an opportunity to further refine your understanding of the various interests of the groups.

Develop stakeholder participation in stages and learn as you go. You might think about the different kinds of stakeholders as forming ever broader circles around your business (see Figure 8-b). Begin with the innermost circle and work outward.

Figure 8-b. Levels of stakeholder interest



Communications

When working with either internal or external stakeholders, including your IEMS team, effective communication will facilitate a smooth implementation of your IEMS. You will want to follow these effective rules of communication:

Begin early in the process.

Let people know what you are doing. In most cases, you will need the cooperation of several people within your company to gather information and develop an IEMS that will work. In small and large organizations alike, early communication will pay off in greater acceptance of the resulting system.

Set your communication objectives.

Decide what you want to achieve in your communication. Setting this goal will help you get the right message across

L Tip

It's important to revisit the communication plan at various stages of your IEMS development to add any additional communication needs for each piece of your IEMS.

without overwhelming people with too much information, spending too much time, or missing the mark. It is helpful to create an IEMS communication policy for your company. The policy should outline what kinds of information will be communicated to external stakeholders, and how the company will document and respond to communications from external stakeholders. In addition, the policy should discuss how the company will report environmental health and safety (EH&S) incidents, such as spills, accidents and "near misses". The policy should include who reports what, to whom, and when.

Communicate regularly and integrate IEMS communication.

To build support for the IEMS, try to communicate on a regular basis. Some simple means of regular communication can usually be accomplished without straining resources – for example, a bulletin board posting, email messages, or articles in the organization newsletter. Don't forget to consider direct word-of-mouth communication, particularly in smaller organizations. Talking directly with key individuals at intervals may be the best mechanism for ensuring good communication. Use existing channels of communication to get the message out on your IEMS activities.

Consider various methods of communication when informing stakeholders about your company and what you are doing, or plan to do, to protect the environment. Methods may include:

- discussion in company meetings;
- company website;
- scheduling tours of your facility;
- producing a fact sheet about your company's activities, the EMS program, and why and how your company would like to include stakeholders;
- establishing a phone line to answer questions, record concerns, etc.;
- going to local schools, community colleges, universities, or civic organizations, such as the Rotary, that may provide a focal point of interest about your company; and
- holding public meetings when you feel it is appropriate.

Ensure that stakeholder dialogue is a two-way process.

The stakeholders will want to know that their comments and concerns are being listened to and taken into account. You need to convey that your organization is genuinely and actively including them.

Worksheet 8-4 will help you develop criteria.

L Tip

Create and maintain a list of everyone you can think of who would be interested in your company's environmental activities. Include how you could reach them. You can then make a decision about where to begin. You could start with staff and later add other audiences if that suits your capabilities and needs. It is helpful to make your communication list as complete as possible to start with but pare it down to start out. Begin small, and then you can use the list to expand when ready.

Worksheet 8-4:* Working with Stakeholders						
Your Stakeholders	**Potential Environmental Interest**	**What you want to tell them:**	**What you want them to tell you:**	**How to communicate with/tell them:**	**When**	**Person Responsible**
(Example) Employees		Environmental policy	How to get it done	Memo, bulletin board, meetings, suggestion box, intranet		
(Example) Neighbors		Environmental policy and IEMS plans	Their environmental concerns	Meetings, open house, flyers, suggestion box, web site		
Customers		Environmental policy and IEMS plans	Their environmental concerns	Above, plus inserts in direct mail advertising, or billing, web site		
Contact Person:			Date Completed:			

*Report results on CS-01 in *Company Manual Template.*

To complete this worksheet, think about ways to use your current means of communication to begin your dialogue. Consider which methods will work to convey your message to each group, and which will work to obtain the information you want to get from each group. The means that you choose may be different for each stakeholder group.

In addition to communicating with your stakeholders, it is important to track their communication to your company and the response made to that communication. A procedure for documenting and responding to stakeholder communication should be established and a person appointed to be responsible for carrying it out. Worksheet 8-5 will assist you in setting up and documenting each communication.

The following Case Study shows how "Company B" set up a process to train and then use its internal stakeholders to identify environmental concerns and some of the benefits achieved.

L Tip

Make use of current technology. A company website can be used to communicate your company's environmental policy and other important elements of your IEMS. It can also be used to solicit comments and suggestions from stakeholders.

Worksheet 8-5: Stakeholder Communication Record	
Date Communication Received:	
Type of Communication:	
Received From:	
Address/Telephone Number/E-Mail:	
Content of Communication (attach copy if possible):	
Will ABC Company Respond?	Y N
Date of Response:	
Person Responding:	
Nature of Response (attach copy if possible):	
Are Internal Actions Necessary? (If Yes, fill out a Corrective Action Form.)	Y N
Contact Person:	Date Completed:

Corresponds to CS-02 of the *Company Manual Template*.

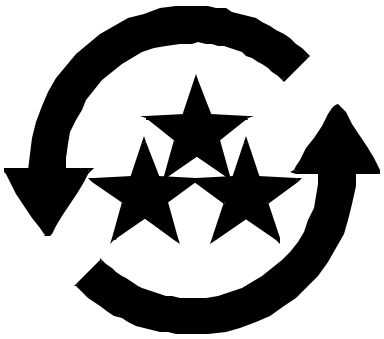
Case Study: Company B — Working With Stakeholders

Company B is a 30-person company that manufactures sangria and chile salsa. With strong senior management backing and support from a local consultant, Company B focused initially on building environmental consciousness among its employees. To all of its workers and managers the company offered general environmental awareness training as well as more specific training on how to identify specific environmental issues. Employees then split into 10 teams, each charged with identifying the environmental issues associated with a specific area of operation, from the acquisition of raw materials through to product delivery. Based on the work of these teams, Company B developed a list of its most important environmental issues and concrete objectives and plans for improvement.

The key to Company B's success lay in using participatory teams to define new environmental problems and develop solutions. For example, the company identified waste of raw materials as an environmental issue, and teams from several areas found ways of reducing waste. Company B now requires its suppliers to use stronger containers to avoid materials spoilage. More significantly, the team from the mixing area realized that by using a spray nozzle to clean out left-over orange juice concentrate (a key ingredient in sangria) from large supply containers, it can recover an additional 3,000 pounds of concentrate (6% of its total consumption, valued at $4,200) per year. Company B gained an even greater economic benefit by revising its process for cleaning and sanitizing its stainless steel tanks, reducing use of an iodine-based cleaning fluid by 11,000 liters per year, or 90%, at an estimated yearly savings of $7,000.

Other benefits the company has realized include improved compliance, a safer work environment, and reduced emissions from its transport vehicles thanks to improved maintenance. The environmental awareness of all employees has increased significantly, with some workers extending their new-found environmental consciousness to their homes. The company has also publicized its participation in the EMS project to the local community in an effort to improve its community relations and to help improve the environmental awareness of the community.

MODULE 9: ESTABLISHING CONTINUING IMPROVEMENT



Now it's time to step back and look at the total picture. Your IEMS constitutes an overarching "Environmental Management Program" made up all of the elements we have covered above and a few additional elements that we will cover in this module. The framework of your IEMS Program at this point includes:

- Company Environmental Policy
- Environmental Aspects Review Process
- Objectives, Targets and Environmental Management Programs
- Measuring Environment Performance and Taking Corrective Action
- Operational Controls
- Documentation Plan
- Stakeholder Strategy
- Communication Plan

The final steps in developing your EMS include:

- determining program measurement criteria,
- setting up an internal assessment process, and
- establishing a management review process.

Principles emphasize the importance of continuing improvement. Environmental improvement requires work in steps. It will not be achieved overnight, but must be viewed as a long-term, evolving process.

Resource 

Review the *Company Manual Template* for sample procedures and formats to help you document important components of your IEMS.

Step 1: Determine program measurement criteria

Determining measurement criteria, also called environmental performance indicators, will help you evaluate the success of your overall IEMS program. The purpose of these indicators is different from the specific measurement criteria you developed for evaluating progress toward individual objectives. These performance indicators focus on how well the overall system for improving environmental management is functioning. Select performance indicators that will help you and your employees decide whether success has been achieved or whether improvement in procedures needs to be made. It is easier for management and staff to understand how things are going if they have benchmarks as guidelines.

You will need performance indicators that describe how well your environmental policy is being implemented. In addition, you will need performance indicators for all of the various components of your IEMS. The measurement criteria selected for each component of your IEMS will probably be different. For example, how will you measure the success of communication, documentation, stakeholder outreach, or training programs?

One approach is to measure the *activities*, for example, number of meetings held with stakeholders, number of documents created, number of employees trained, or number of hours of training. Activity, however, does not always mean results. Consider the objective of each IEMS component and define a way to measure *results* so that you would feel satisfied that the objectives are achieved.

To measure results effectively, your methods should be:

- simple
- flexible
- consistent
- ongoing
- usable (i.e., results communicated)
- accurate (i.e., reliable data produced)

Worksheet 9-1 will help you organize your thoughts.

Worksheet 9-1: IEMS Program Measurement Criteria

Company Name_____

Measurement Elements / IEMS Components	Objectives of Component	Activity Measures	Results Indicators	Review Period
Environmental Policy				
Communication Plan				
Stakeholders Input				
Environmental or IEMS Training				
Review of Aspects				
Operational Controls				
Environmental Review of New Processes and Activities				
Setting Objectives & Targets				
Environmental Management Project 1				
Environmental Management Project 2				
Documentation				
Regulatory Compliance				
Pollution Prevention				
Other				
Contact person for form:			Date Completed:	

Here are some examples of IEMS results measurements for various program components that can be tracked over time:

- number of significant environmental aspects included in environmental projects plan
- number of environmental objectives and targets met
- pounds of hazardous waste generated per unit of production
- employee sick leave absences related to work environment
- percentage of employees completing environmental training
- average time for resolving corrective action
- energy or water use per unit of production
- percentage of solid waste recycled/reused
- number of complaints from community; number of responses to complaints
- number of pollution prevention ideas generated from employees
- resources used per unit of product or service
- pollution (by type) generated per unit of product or service
- per cent of products for which life cycle assessment has been conducted
- number of products which have a recycling program
- number of instances of non-compliance

It is the results shown by these environmental performance indicators that will become the basis for your plans for next year and for establishing continuous improvement.

Step 2: Set up an internal assessment process

To make sure that your IEMS is achieving the general goals outlined in your Environmental Policy, you will need to establish procedures for an assessment process and assign people to be responsible for accomplishing the assessments on a regular basis. In general, assessments are conducted through interviews, examination of documents, observation of activities, and review of results of measurements. Assessments should be conducted regularly, for example, on every quarter. The purpose of the assessment is to develop information for management review and to take corrective action where needed. The assessment procedures should describe:

- the activities and areas to be considered in assessments,
- the frequency of assessment,
- the responsibilities associated with managing and conducting assessments,

- the communication of assessment findings,
- assessor competence, and
- how assessments will be conducted.

Assessments may be performed by personnel from within the organization or by external persons selected by the organization. In either case, the persons conducting the assessment should be in a position to do so impartially and objectively. Use Worksheet 9-1 along with Worksheet 9-2 and 9-3 to help you set up your assessment process. The Worksheet 9-2 specifies some of the factors that will be examined during the assessment and Worksheet 9-3 will help you track correction of non-conformities.

These forms alone will not be enough to conduct assessments. First, the categories should match what is appropriate for your company. Second, each category will probably require subheadings to fully describe what you need to check about each category to be assessed. These worksheets are more of a summary log with suggestions about what you might want to include. Although every part of your IEMS program should be assessed regularly, all parts need not be assessed at the same time, nor on the same schedule. Make this IEMS work to help you ensure that your IEMS program is doing what you want it to do.

Worksheet 9-2: Internal Assessment Checklist

Internal Assessment Team:
Date of Internal Assessment: _____ Signed: _____

IEMS Procedures:

Check each item assessed, including auditing of records, where applicable (codes in parentheses refer to the Worksheet number ("WS") in this Guide, followed by the document number in the *Company Manual Template*):

__Environmental policy (Module 2)
__Environmental objectives (progress; implementation of action plans)
__IEMS responsibilities (WS 7-2, RESP-01)
__Identification of Environmental Aspects (WS 1-5, P-EA)
__Identification of Legal Requirements (WS 1-6, P-LR)
__Identification of Significant Environmental Aspects (WS 3-3, WS 3-6, P-SEA)
__Development of Objectives, Targets, and Action Plans (WS 5-1, P-OTP)
__Conducting an Alternatives Evaluation (WS 4-1 to 4-6, P-AE)
__Development of Operational Controls (WS 6-1 to 6-3, P-OC)
__Environmental Training (Awareness and Task-Specific) (WS 8-1, P-ET)
__Emergency Preparedness (WS 7-5, P-EP)
__Review of New Products and Processes (WS 7-3, P-NPP)
__Documentation (WS 8-2, WS 8-3, P-D)
__Conducting a Compliance Assessment (WS 5-4, P-CA)
__Conducting an Internal Assessment (WS 9-2, WS 9-3, P-IA)
__Taking Corrective Action (WS 5-3, P-TCA)
__Management Review (WS 9-4, P-MR)

IEMS Performance

__Achieved objective #1
__Achieved objective #2
__Achieved objective #3

Contact Person: Date Completed:

Corresponds to LA-01 of the *Company Manual Template*.

Worksheet 9-3: Internal Assessment Record

Internal Assessment Team:

Date of Internal Assessment: _____ Signed: _____

Major Non-Conformities Observed

1.

2.

Minor Non-Conformities Observed

1.

2.

3.

Is ABC Company making progress in meeting its IEMS objectives?

Is ABC Company adhering to the commitments in its environmental policy?

Suggestions for Improving IEMS:

Contact Person: Date Completed:

Corresponds to IA-02 of the *Company Manual Template*.

Review your company's environmental aspects and objectives

As part of your internal assessment, it is critical that you regularly review your company's environmental aspects and objectives. Over time, you will probably add to the list of environmental aspects and you may need to re-rank the aspects as your activities change and as new information becomes available. Here are some things to check:

- New process review — have any changes introduced new environmental aspects?
- Worksheets from the most recent environmental aspect identification and ranking exercises — is there new information on chemical effects? If so, update your worksheets.
- Communication received from stakeholders — do any comments suggest a need for re-ranking your aspects?
- Environmental objectives and targets — what new ones will your company set for this time period?
- Pollution prevention program — has information become available from this effort that would add aspects or objectives?
- Assessment program — have your assessments turned up information on where your IEMS and environmental programs could be improved? Would this information be useful in your aspect identification process or in redesigning your objectives?

L Tip

Regularly revisiting your environmental aspects and objectives is an essential step in developing an EMS that achieves the goal of continuous environmental improvements.

The regular review of aspects can be used to change the priorities you set last time, or it can be used to examine a part of your company's activities that you set aside last time. The regular review can be part of a planned "phasing in" process, wherein different parts of your company's operations are reviewed until all your company's activities are included in your IEMS. The regular review of aspects is the foundation for your company's continuing improvement.

Step 3: Establish a senior management review process

To maintain continual improvement, suitability, and effectiveness of your environmental management system, and thereby its performance, your organization's senior management should review and evaluate the environmental management system at defined intervals, such as quarterly. The scope of the review should be comprehensive, though not all elements of an

environmental management system need to be reviewed at once, and the review process may take place over a period of time. The worksheets in Steps 1 and 2 provide information for the management review. Review of the policy, objectives, and procedures should be carried out by the level of management that defined them. Following is a checklist of some of the things that should be included in the management review:

- results from assessment,
- the extent to which objectives and targets have been met,
- the continuing suitability of the environmental management system in relation to changing conditions and information, and
- concerns amongst relevant interested parties.

Questions for management to consider include:

- Is our environmental policy still relevant to what we do?
- Are roles and responsibilities clear and do they make sense?
- Are we applying resources appropriately?
- Are we meeting our regulatory obligations?
- Are the procedures clear and adequate? Do we need others? Should we eliminate some?
- What effects have changes in materials, products, or services had on our IEMS and its effectiveness?
- How effective are our measurement and assessment systems?
- Can we set new measurable performance objectives?
- What effects have changes in materials, products, or services had on our IEMS and its effectiveness?
- Do changes in laws or regulations require us to change some of our approaches?
- What stakeholder concerns have been raised since our last review?
- Is there a better way? What else can we do to improve?

Create a continual improvement plan and check progress. Document observations, conclusions, and recommendations for necessary action. Assign action items for follow-up, and schedule the next regular review. Worksheet 9-4 will provide a place to record management review information.

Worksheet 9-4: Management Review Record	
Date of review meeting:	
Persons present at meeting:	
Conclusions:	
Actions to be taken/Person(s) responsible:	
Signed:_____ Management Representative	_____ Plant Manager

Worksheet 9-4 corresponds to MR-01 in the *Company Manual Template.*

Congratulations!

This completes your IEMS. Hopefully, the management system accompanied by the annual process of review and renewed objectives will bring its own rewards in greater productivity, reduced costs and healthier environments!